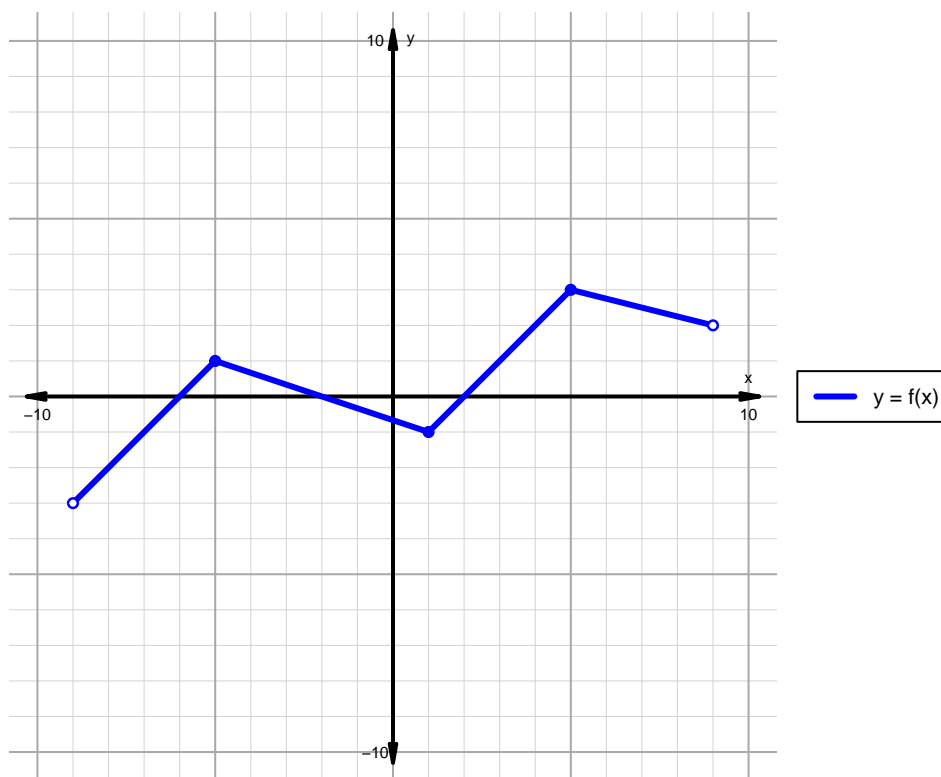


Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Intervals, Transformations, and Slope Solution (version 55)**

1. The function  $f$  is graphed below.

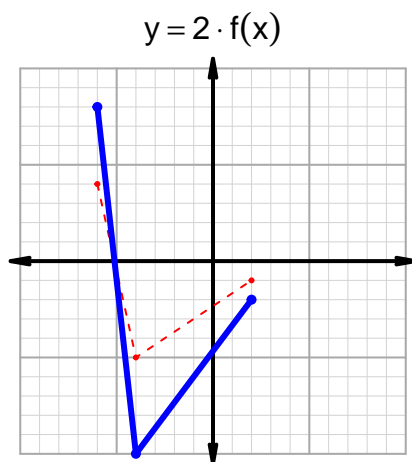
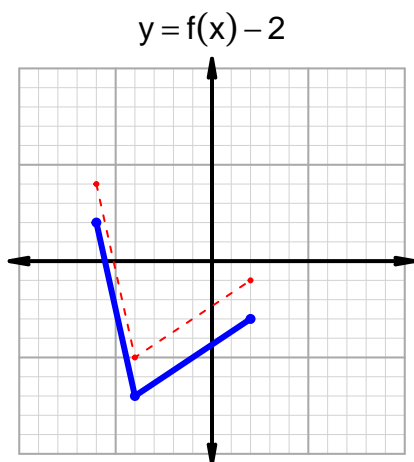
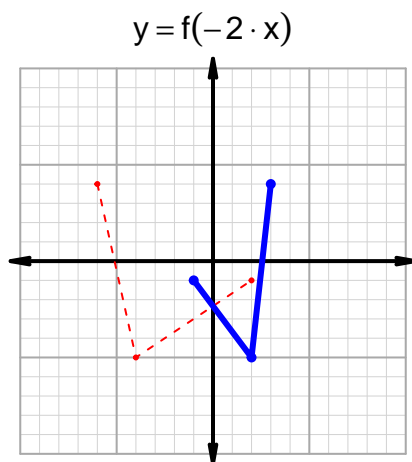
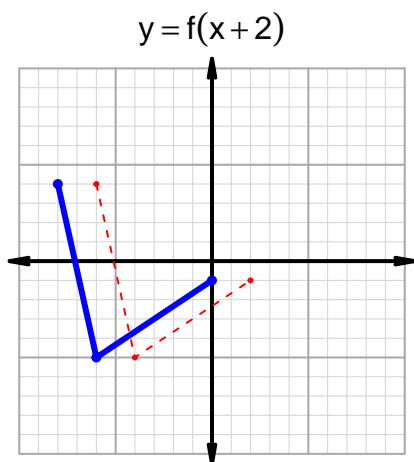


Indicate the following intervals using interval notation. Remember, you can use  $\cup$  between two intervals to indicate the union. Except for range, all intervals will indicate  $x$  values; this is standard.

Feature	Where
Positive	$(-6, -2) \cup (2, 9)$
Negative	$(-9, -6) \cup (-2, 2)$
Increasing	$(-9, -5) \cup (1, 5)$
Decreasing	$(-5, 1) \cup (5, 9)$
Domain	$(-9, 9)$
Range	$(-3, 3)$

## Intervals, Transformations, and Slope Solution (version 55)

2. In the four graphs below,  $y = f(x)$  is graphed as a dotted line. With a solid line, please graph the transformations indicated by the equations below.



3. Let function  $g$  be defined by the table below. Use the formula  $\frac{g(x_2) - g(x_1)}{x_2 - x_1}$  to find the average rate of change between  $x_1 = 80$  and  $x_2 = 98$ . Express your answer as a reduced fraction.

$x$	$g(x)$
25	80
80	88
88	98
98	25

$$\frac{g(98) - g(80)}{98 - 80} = \frac{25 - 88}{98 - 80} = \frac{-63}{18}$$

The greatest common factor of -63 and 18 is 9. Divide numerator and denominator by the greatest common factor.

$$\text{AROC} = \frac{-7}{2}$$